APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/891,020	06/25/2001	Gordon J. Harris	07072-137001/CS-005	9419

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EXAMINER
NGUYEN, QUANG N

ART UNIT	PAPER NUMBER
2141	

DATE MAILED: 11/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/891,020	HARRIS, GORDON J.
	Examiner	Art Unit
	Quang N. Nguyen	2141

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _04 October 2005_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-11 and 14-20_ is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-11 and 14-20_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _24 September 2001_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a)☐ All   b)☐ Some * c)☐ None of:

　　　1.☐ Certified copies of the priority documents have been received.

　　　2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
　　Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
　　Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

Detailed Action

1.   A request for continued examination under 37 CFR 1.114, including the fee set

forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this

application is eligible for continued examination under 37 CFR 1.114, and the fee set

forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action

has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on

10/04/2005 has been entered.

Claims 1 and 14 have been amended.   Claims 12-13 and 21-22 have been

canceled. Claims 1-11 and 14-20 remain for examination.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3.   **Claims 1-11 and 14-18 are rejected under 35 U.S.C. 103(a) as being**

unpatentable over Nijhawan et al. (US 6,374,341), hereafter referred as Nijhawan,

in view of Vishin et al. (US 5,860,146), hereafter referred as Vishin, and further in

view of Applicant Admitted Prior Art (AAPA).

4.   As to claim 1, Nijhawan teaches a method comprising:

moving data from a mass storage device into a physical memory page, said physical memory page comprising a plurality of physical memory clusters *(a plurality of memory blocks 92 and 94 are aligned as in Fig. 9)* (Nijhawan, Fig. 9);

creating a logical page providing an aligned view of the data (Nijhawan, Fig. 9 and C3:L60 – C4:L27);

establishing a relationship between the logical page and the physical memory page such that the logical page is associated with said plurality of physical memory clusters *(a logical page number is mapped or translated to a physical page number, and then the target physical location within the page can be accessed)* (Nijhawan, C4: L3-6);

forwarding a list of the logical pages *(i.e., a page table)* to a storage resource such that the data referenced by the logical pages are stored subsequently into a storage resource *(as in Fig. 8, the linear address translation maintains all memory blocks are aligned, no two such memory blocks are mapped in the same linear address, no overlapping mappings and the block of memory is correctly sized-aligned in physical memory as in Fig. 9)* (Nijhawan, C9: L26-37 and C10: L7-16).

However, Nijhawan does not explicitly teach moving data from a network layer into a physical memory page, wherein the network layer receives and transmits the data as data packets that are odd sized, arrive asynchronously, and contain metadata embedded with real data.

In a related art, Vishin teaches a distributed computer system having a primary translation lookaside buffer for storing page table entries and translating virtual *(logical)* addresses into physical addresses governed by a memory controller 112 that can also send requests via a network 114 to pull in pages of data stored in the memory stores or secondary memory of other clusters 102 or other devices coupled to the network 114 *(i.e., moving/accessing/writing data from/to a remote cluster 102 via the network 114 inherently includes the step of moving data from a network layer into a physical memory space)* (Vishin, Fig. 1, C1: L12-24).

Also, Applicant Admitted Prior Art (AAPA) teaches in an Ethernet network, network data can be transmitted and received as data packets that can be characterized as being odd-sized, arriving asynchronously or without warning, and having metadata such as protocol information embedded along with real data (AAPA, Background, page 1, lines8-12).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teachings of Nijhawan, Vishin and AAPA to include moving data from a network layer into a physical memory page, wherein the network layer receives and transmits the data as data packets that are odd sized, arrive asynchronously, and contain metadata embedded with real data since such methods were conventionally employed in the art to extend the address space to memory outside the cluster by using virtual memory management subsystem to manage access to remote physical address through the use of a (remote) page table and/or an auxiliary translation lookaside buffer (Vishin, C1: L5-9 and L54-63).

5.   As to claim 2, Nijhawan-Vishin-AAPA teaches the method of claim 1, further comprising: dividing the physical memory pages into physical memory clusters *(memory block size from 4K to 4M)* such that the data received by the network layer is stored into the physical memory clusters *(i.e., data is stored in memory blocks 92 and 94)* (Nijhawan, Fig. 9 and C10: L7-16).

6.   As to claim 3, Nijhawan-Vishin-AAPA teaches the method of claim 1, further comprising: creating a plurality of logical pages based on the offset and length of the data associated with a network drive operation (Nijhawan, C7: L3-18 and C8: L40-51).

7.   As to claim 4, Nijhawan-Vishin-AAPA teaches the method of claim 1, further comprising: creating a read only logical page comprising zeros, i.e., comprising un-initialized data *(the OS ensures that all memory blocks are aligned on a 4M linear address boundary so that the lower 22 bits of the starting linear address of the memory blocks are zero)* (Nijhawan, C2: L1-5).

8.   As to claim 5, Nijhawan-Vishin-AAPA teaches the method of claim 1, further comprising: merging an existing physical memory cluster with a new physical cluster based on the offset and length of the existing physical memory cluster and based on the offset and length of the new physical memory cluster *(within the allocated 128K of memory, the OS inherently maps 64K block of memory that resides in physical memory*

on 64K boundaries, which can be used for the desired 40K block, and then the extra memory on either side of the 64K boundaries can be reallocated/remerged) (Nijhawan, C9:L61 – C10:L7).

9.   Claims 6-11 are corresponding system claims of method claims 1-5; therefore, they are rejected under the same rationale.

10.   Claims 14-18 are corresponding computer-readable medium claims of method claims 1-5; therefore, they are rejected under the same rationale.

11.   Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nijhawan-Vishin-AAPA, and further in view of Richter (US 2003/0097481 A1).

12.   As to claims 19-20, Nijhawan-Vishin-AAPA teaches the method of claim 1, but does not explicitly teach the network layer uses a transport control protocol / internet protocol (TCP/IP) to transmit and receive the data as data packets over a computer network such as an Ethernet.

In a related art, Richter teaches a content delivery system that receives and transmits data packets, wherein the network interface engine (i.e., the network layer) performs the MAC, IP, TCP or UDP header identification, verification and checksum validation/generation, etc., in receiving and transmitting the data packets (Richter, paragraph [0072]).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teaching of Nijhawan-Vishin-AAPA and Richter to use TCP/IP to transmit and receive the data as data packets over the Ethernet network since such methods were conventionally employed in the art to allow the system using the well-established networking protocol stack TCP-UDP/IP suite to verify end-to-end data integrity to ensure that intermediate forwarding notes, client memory problems, and statistically remote errors have not corrupted the original data packets outside of media layer detection in transmitting and receiving the data packets over the Ethernet network (Richter, paragraph [0003]).

Response to Arguments

13.   Applicant's arguments as well as request for reconsideration filed on 10/04/2005 have been fully considered but they are not deemed to be persuasive and moot in view of the new ground(s) of rejection.

14.   Further references of interest are cited on Form PTO-892, which is an attachment to this office action.

15.   A shortened statutory period for reply to this action is set to expire THREE (3) months from the mailing date of this communication. See 37 CFR 1.134.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quang N. Nguyen whose telephone number is (571) 272-3886.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's SPE, Rupal Dharia, can be reached at (571) 272-3880. The fax phone number for the organization is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RUPAL DHARIA
SUPERVISORY PATENT EXAMINER